## WHAT IS CLAIMED:

1.      A differential amplitude detection diversity receiver employing MRC, comprising:

a majority of decision variable calculating sections configured to compute amplitude decision variables by multiplying the distances by the amplitudes of signals currently received at each antenna; and

amplitude decision section configured to compose the computed amplitude decision variables and to determine the amplitude of the received signal by selecting amplitude candidate value corresponding to a certain composed amplitude decision variable from the composed amplitude decision variables.

2.      The diversity receiver of claim 1, wherein the decision variable calculating section comprises:

a majority of Differential Amplitude Calculators (DAC) configured to calculate the amplitude ratios between the amplitudes of the signal received at the (n)th sampling period and (n-1)th sampling period (where n is integer); and

a majority of Amplitude Hypothesis Calculators (AHC) configured to compute the amplitude decision variables of the received signal by calculating the distances, between the amplitude ratios of signals received at each antenna and each amplitude candidate value, and by multiplying the distances by the amplitudes of signals received at the (n)th sampling period.

3.      The diversity receiver of claim 1, wherein the amplitude decision section comprises:

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Amplitude Combiner (AC) configured to compose the amplitude decision variables of each antenna, computed by the decision variable calculating section, according to the amplitude candidate values; and

Amplitude Detector (AD) configured to determine the amplitude of the received signal by selecting amplitude candidate value corresponding to the composed amplitude decision variable, whose magnitude is the minimum among the composed amplitude decision variables.

4. A method of receiving signals using a differential amplitude detection diversity receiver employing MRC, comprising:

computing amplitude decision variables by multiplying the distances between the amplitude ratios of signals received at each antenna and each amplitude candidate value by the amplitudes of signals currently received at each antenna;

composing the amplitude decision variables of each antenna according to the amplitude candidate values; and

determining the amplitude of the received signal by selecting amplitude candidate value corresponding to the composed amplitude decision variable, whose magnitude is the minimum among the composed amplitude decision variables.

5. The method of claim 4, wherein said computing amplitude decision variables comprises:

calculating the amplitude ratios between the amplitudes of the signal received at the (n)th sampling period and (n-1)th sampling period (where n is integer);

calculating the distances between the amplitude ratios of signals received at each antenna and each amplitude candidate value; and

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computing the amplitude decision variables of the received signal by multiplying the distances by the amplitudes of signals received at the (n)th sampling period.